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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/788,621	02/27/2004	Christopher J. Kowalsky	DKT03160	6497

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BORGWARNER INC.  
PATENT DEPARTMENT  
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EXAMINER
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BONCK, RODNEY H

ART UNIT	PAPER NUMBER
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3681

DATE MAILED: 07/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/788,621

Applicant(s)

KOWALSKY ET AL.

Examiner

Rodney H. Bonck

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 06 June 2006.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,3,6-8,13-15,18,21,22 and 24-26 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1,3,6-8,13-15,18,21,22 and 24-26 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

The following action is in response to the amendment received June 6, 2006.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 3, 6-8, 13,14, 24 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bansbach et al.('338) in view of Maehara et al.('407) and Shaw et al.(US 2002/0162328 A1). The Bansbach et al. device is a unitary electrohydraulic

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clutch assembly comprising an input member 30 and a coaxially disposed output member 52 defining an axis. Bidirectional electric motor 92 drives gear train 94 has an input driven by the motor, and a ball screw 100 is driven by the gear train 94 and drives a first piston 118 displacing hydraulic fluid. Annular slave piston 82 is disposed on the axis and is translated by the hydraulic pressure, and friction clutch 70 is disposed on the axis and is actuated by the annular slave piston. The Bansbach et al. device does not appear to disclose a means for inhibiting back driving of the motor. The Maehara et al. device shows an electric motor 2200 (Fig. 12) for moving a first piston 2370 to displace hydraulic fluid that translates a piston in actuator 40 of clutch 30. Maehara et al. teach providing a means 3100 for inhibiting back driving of the electric motor 2200 and having an output 3002. It would have been obvious to provide a means for inhibiting back driving of the motor 92 in Bansbach et al., as taught by Maehara et al., the motivation being to make it unnecessary to constantly energize the electric motor to maintain clutch engagement. The inhibiting means of Maehara et al. includes a wrap spring 3100 disposed in a cylindrical passageway and extending between a motor output hub 3001 and the inhibiting means output 3002. Maehara et al. further disclosed controller 50 which would logically be a microprocessor. In Bansbach et al., the friction clutch pack 70 includes first and second interleaved clutch plates and a circular apply plate 76 and a thrust bearing 128 disposed between piston 82 and the clutch pack. Regarding claims 24 and 25, disposing the input member, output member, electric motor, back drive inhibiting means, gear train, ball screw assembly, pistons, and friction clutch pack in a housing is not seen to distinguish over Bansbach et al. and Maehara et al.

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Bansbach provides housing portion 96 containing the power unit (Fig. 3) and which would contain the back drive inhibiting means as modified in view of Maehara et al. Housing portion 96 is attached to housing portion 48 containing the clutch pack and annular piston. Together the housing portions provide a housing containing all the claimed items. The Bansbach et al. device does not appear to disclose a pressure sensor, as called for in these claims. The Maehara et al. provides a pressure sensor at 70 (Fig. 5) for sending pressure information to controller 50. Additionally, the Shaw et al. device discloses an electric motor-actuated master cylinder/slave cylinder arrangement wherein a pressure sensor 174 is provided to sense pressure in the output line to the slave cylinder. It would have been obvious to carry this teaching to Bansbach et al. as modified in view of Maehara et al., providing a pressure sensor therein for the purpose of protecting the system from overpressure.

Claims 15, 18, 21, 22, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bansbach et al.('338) in view of Maehara et al.('407) and Shaw et al.(US 2002/0162328 A1) as applied to claims 1, 3, 6-8, 13,14, 24 and 25 above, and further in view of Takeyama('546). In Bansbach et al., the electric motor drives single pinion 114 that in turn drives one large spur gear 112. To a person having ordinary skill in this art, however, it would have been obvious vary the gear arrangement depending on the amount of speed reduction desired. Takeyama discloses a bidirectional electric motor driving a master cylinder through a gear reduction unit including two pinions 27 and 23a and two larger spur gears 23b and 18. It would have been within the skill of the artisan to use a gearing arrangement such as that of Takeyama in the device of

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Bansbach et al., the motivation being to achieve a particular speed reduction.

Regarding claim 26, disposing the input member, output member, electric motor, back drive inhibiting means, gear train, ball screw assembly, pistons, and friction clutch pack in a housing is not seen to distinguish over Bansbach et al. and Maehara et al., as noted above. Bansbach provides housing portion 96 containing the power unit (Fig. 3) and which would contain the back drive inhibiting means as modified in view of Maehara et al. Housing portion 96 is attached to housing portion 48 containing the clutch pack and annular piston. Together the housing portions provide a housing containing all the claimed items.

### ***Response to Arguments***

Applicants' arguments filed June 6, 2006 have been fully considered but they are not persuasive. Applicants correctly note that pressure must be constantly applied to maintain clutch engagement. With Maehara et al., however, the electric motor does not need to constantly apply pressure to the pressure-producing portion. Thus the motor need not be constantly energized to maintain clutch engagement. This obviously creates energy savings. Applicants maintain that Maehara et al. teaches that return springs and anti-backdrive assemblies are a necessary combination, while applicants' device lacks return springs. Thus, applicants assert that Maehara et al. "teach away from Applicants' device". Bansbach et al. does include a return spring (130), however, and it is a modification of Bansbach et al. that is proposed by the rejection, not a modification of applicants' device. The claims do not preclude the presence of springs

biasing the device toward a clutch disengagement position. Thus, it is still maintained that it would have been obvious to provide an anti-backdrive device in Bansbach et al. in view of Maehara et al.

Additionally claiming the presence of a pressure sensor and microprocessor is not seen to distinguish over the prior art. The Maehara et al. device has a pressure sensor 70 providing a signal representing pressure of the hydraulic fluid to controller 50, which in turn controls motor 200. It is submitted that controller 50 is a microprocessor. Shaw et al. further teaches using a pressure sensor in a motor-operated hydraulic pressure actuator. Pressure sensor 174 provides a signal to controller 176, which operates to control functions of the system through a connection to motor 146. The rejection sets forth a motivation of preventing system overpressure as a reason to provide a pressure sensor in Bansbach et al. Applicants assert that "nothing in either Applicants' disclosure or Shaw discusses over pressure protection." Preventing overpressure, e.g., to protect system seals, is one of a number of reasons to provide a pressure sensor and is still seen as a valid motivation to provide such a sensor in Bansbach et al.

The Bansbach et al. device provides a single pinion 114 driving larger gear 112. It is submitted that a person having ordinary skill in this art would have found it obvious to vary the gearing arrangement in Bansbach et al. depending on the desired direction of output rotation and/or the gear-down necessary for the particular electric motor used. For example, additional appropriately sized gears would permit the use of a less

powerful motor in the Bansbach et al. device. Thus using a gear arrangement such as that shown by Takeyama is seen as obvious within the meaning of 35 USC 103.

For the above reasons, the claim rejections are believed proper.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rodney H. Bonck whose telephone number is (571) 272-7089. The examiner can normally be reached on Monday-Friday 7:00AM - 3:30PM.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles A. Marmor can be reached on (571) 272-7095. The fax phone



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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Rodney H. Bonck  
Primary Examiner  
Art Unit 3681

rhb  
July 11, 2006